

REMARKS

Claims 22-25 were rejected under 35 USC 103(a) as being unpatentable over Hubbard in view of Akram. Applicant respectfully traverses this rejection.

The present application is directed to a method of forming a stackable wafer for use in an implantable medical device. In particular, claim 22 includes a plurality of electrical connections, wherein each comprises “an interconnection between a bump on an upper surface of the first die and a contact pad disposed on and extending away from a lower surface of the second die.” These bumps and pads were described within the present specification at page 14, which stated that “bumps 414 and conductive pads 416 are formed adjacent the conductive material 410, extending beyond the surface 412 and a surface 418 of the wafer 400.” In other words, the bumps and pads form structures that extend beyond the surface of their respective wafer and when stacked together, form a spacing structure that can be soldered or otherwise connected together. The bonding occurs at and around the intersection of the bump and the pad.

The Examiner has asserted that the claims do not require that the contact pad extend beyond the surface. Applicant respectfully asserts that is how the term “contact pad” is defined and should be interpreted. However, to expedite prosecution, Applicant has added this language to the claim. This amendment is made solely for purposes of clarity and does not further narrow the claim. That is, the amended claim only recites the definition that was inherently present prior to the amendment.

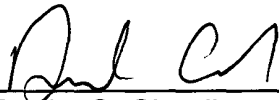
Hubbard teaches a stacked semiconductor device for use in an IMD wherein connections are formed between stacked solder balls that are then reflowed to form a columned interconnection structure. In this manner, connections can be made between desired contact locations without such structures (e.g., solder balls) having been formed during the manufacture of the substrate. That is, solder balls can be added at a later time. In addition, the use of solder balls provides a self-centering or corrective function. As the solder balls are reflowed, the respective substrates will tend to align with one another. Hubbard is acknowledged as failing to teach bumps and pads.

Akram teaches a microbump interconnect between substrates. Primarily, this is used to facilitate temporary connections for testing purposes. A microbump on one surface is placed into contact with a "bond pad 38" on another surface. The Examiner has equated this bond pad with the claimed conductive pad. Applicant respectfully asserts that the claimed bond pad is an element that protrudes some distance from its associated substrate; thus forming a contact point for the claimed bump that is likewise spaced some distance from the substrate. Conversely, Akram teaches a bond pad 38 that is recessed into the substrate to form a planar surface that is flush with the substrate. Thus, neither Hubbard nor Akram, alone or in combination teach the presently claimed method. In addition, it is noted that Hubbard and Akram are not properly combinable in the present context and the Examiner has failed to provide a legally sufficient motivation to make such a combination in any event.

For at least these reasons, the rejection is believed improper and the Examiner is respectfully requested to withdraw the rejection and issue a Notice of Allowance. Application also notes that there are several other grounds by which this rejection could be traversed and Applicant reserves the right to argue such grounds as required. The application is now in condition for allowance and notice of same is respectfully requested.

Respectfully submitted,

Date: 6/16/07



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